Check List the journal of biodiversity data

NOTES ON GEOGRAPHIC DISTRIBUTION

Check List 16 (2): 383–386
https://doi.org/10.15560/16.2.383

PENSOFT

Atractus albuquerquei Cunha & Nascimento, 1983 (Serpentes, Dipsadidae): range extension and new country record for Bolivia

Randy L. Powell[1], Cord B. Eversole[2], Dennis Lizarro[3, 4], Ashton V. Crocker[1], Elizabeth A. Surovic[1], Gonzalo Calderón Vaca[5]

1 Department of Biology, Texas A&M University-Kingsville, 700 University Blvd. MSC 158, Kingsville, TX, USA 78363. **2** Department of Biology and Chemistry, Texas A&M International University, 5201 University Blvd., Laredo, TX, USA 78041. **3** Centro de Investigación de Recursos Acuáticos (CIRA), Campus Universitario Hernán Melgar Justiniano, Final Av. Japón, Trinidad, Beni, Bolivia. **4** Universidad Autónoma del Beni "José Ballivián", Campus Universitario Hernán Melgar Justiniano, Final Av. Japón, Trinidad, Beni, Bolivia. **5** Carrera de Biología, Universidad Amazónica de Pando, Campus Universitario, Av. Las Palmas, Cobija, Pando, Bolivia.
Corresponding author: Randy L. Powell, randy.powell@tamuk.edu

Abstract

We present new country records and range extensions for the snake *Atractus albuquerquei* Cunha & Nascimento, 1983 (Serpentes, Dipsadidae). These new records fill in the gap in the species' distribution, extending it into Bolivia. There is a paucity of published information on locality data and information on this species, and this account contributes to the knowledge of its distributional status.

Keywords

Neotropics, Pando, primary rainforest, reptile, snake, Squamata.

Academic editor: Rafael de Fraga | Received 30 September 2019 | Accepted 25 February 2020 | Published 7 April 2020

Citation: Powell RL, Eversole CB, Lizarro D, Crocker AV, Surovic EA, Vaca GC (2020) *Atractus albuquerquei* Cunha & Nascimento, 1983 (Serpentes, Dipsadidae): range extension and new country record for Bolivia. Check List 16 (2): 383–386. https://doi.org/10.15560/16.2.383

Introduction

The genus *Atractus* is a large group of more than 140 species (Utez et al. 2019) that is widely distributed throughout Neotropical South America (Passos et al. 2010, 2016). They are small to medium-sized, semi-fossorial snakes that feed on small invertebrates (Martins and Oliveira 1998; Cisneros-Heredia 2005; Camper and Zart 2014; Perrella and Mercival 2016). Interestingly, most species are not well represented in collections (Myers 2003; Zaher et al. 2005; Passos et al. 2018). First described by Cunha and Nascimento (1983), *Atractus albuquerquei* has been documented to occur only in Brazil in the states of Acre, Amazonas, Goiás, Mato Grosso, Mato Grosso do Sul, Minas Gerais, Pará, and Rondônia (Nascimento et al. 2017; Nogueira et al. 2019). Zaher et al. (2005) compiled a list of specimens in collections and an additional more recent update of specimens and geographical distribution was published by Nascimento et al. (2017).

Herein, we describe two specimens of *A. albuquerquei* from the department of Pando, Bolivia, which represent a range extension and new country records for the species.

Methods

Scale counts and scutelation follow Dowling (1951) and Peters (1964). Paired subcaudals were counted on one side only as were head scale counts for paired scales. Dorsal scale count formula taken at three locations and

Copyright *Powell et al.* This is an open access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

separated by (/); head length behind occiput, mid-body, and head length anterior to cloaca. Measurements were taken using a flexible ruler to the nearest millimeter. Sex was determined by the probe method following McDiarmid et al. (2012). Specimen identification was determined by comparing and analyzing: meristic data, morphometrics, coloration, figures, drawings, and photographs from the original description and taxonomic information by Cunha and Nascimento (1983) and subsequent rediscription by Zaher et al. (2005). A comprehensive search for information on *A. albuquerquei* consisted of reviewing published scientific papers and online databases (i.e. VertNet, ARCTOS, GBIF, and SpeciesLink).

The specimens were deposited into the herpetology collection of Centro de Investigación de Recursos Acuáticos (CIRA) in Trinidad, Beni, Bolivia (see Eversole et al. 2019 for additional information). Specimen collection was approved by the TAMUK (#2018-05-22) and TAMIU (#2018-3) Animal Care and Use Committees and permitted by the Dirección General de Biodiversidad y Áreas Protegidas Bolivia.

Results

Atractus albuquerquei Cunha & Nascimento, 1983

New records. BOLIVIA • 1 ♀, snout to vent length, 21.9 cm, tail length, 2.6 cm, live weight, 5.25 g.; Pando, Provincia Abuná, 5.25 km northwest of the community of Humaita; 10.7999° S, 066.4922° W; 20 June 2019, approx. 21:29 h; collector RL Powell, CB Eversole, D Lizarro, EA Surovic, G Calderón-Vaca leg.; specimen found active along a trail in primary rainforest during a herpetofaunal survey; Specimen CIRA-833 (Fig. 1a, 1b). Bolivia • 1 ♀, snout to vent length, 15.8 cm, tail length, 2.1 cm, live weigh, 2.50 g.; Pando, Provincia Abuná, 5.20 km northwest of the community of Humaita; 10.7990° S, 066.4924° W; 20 June 2019, approx. 21:55 h; collector RL Powell, CB Eversole, DE Lizarro, EA Surovic, G Calderón-Vaca leg.; specimen found active along a trail in primary rainforest during a herpetofaunal survey; Specimen CIRA-834 (Fig. 1c, d).

Both individuals were collected in the same type of microhabitat (a few centimeters deep in leaf litter) and approximately 100 m apart on the same trail.

Identification. Both specimens were identified following Cunha and Nascimento (1983) and Zaher et al. (2005) based on the following diagnostic characters: dorsal scales smooth (unkeeled), in 15/15/15 rows, cloacal scale undivided with paired subcaudals. Head scales: six supralabials (2 and 3 contacting loreal, 3 and 4 contacting orbit) with six infralabials. Loreal scale present, approximately 2 times longer than wide. Preocular absent with two postocular scales. One anterior temporal and two posterior temporal scales. See Table 1 for comparison and additional scale counts.

Specimen CIRA-833: dorsal scales smooth (15/15/15), cloacal scale undivided, subcaudals paired. Supralabials six (2 and 3 contacting loreal, 3 and 4 contacting orbit), six infralabials. Loreal scale present, approximately twice as long as wide. Preocular absent, two postoculars, one anterior temporal, two posterior temporals. Specimen CIRA-834: dorsal scales smooth (15/15/15), cloacal scale undivided, subcaudals paired. Supralabials six (2 and 3 contacting loreal, 3 and 4 contacting orbit), 6

Figure 1. *Atractus albuquerquei*. **A.** CIRA-833 full body live photo. **B.** CIRA-833 head view. **C.** CIRA-834 full body live photo. **D.** CIRA-834 head view.

Table 1. Meristic and morphometric data for *Atractus albuquerquei* specimens collected from Pando, Bolivia and compared to previously published information. The abbreviations correspond to: Temporals = anterior + posterior, SVL (snout–vent length), CL (tail length), TL (total length), LSL/LSW ratio (loreal scale length/loreal scale width). Data for Zaher et al. (2005) incorporated data from 33 specimens and list measurement ranges.

Character	CIRA-833	CIRA-834	Cunha and Nascimento 1983	Zaher et al. 2005
Supralabials	6	6	6	6
Infralabials	6	6	6	6
Preoculars	Absent	Absent	Absent	Absent
Postoculars	2	2	2	2
LSL/LSW ratio	2	2	2	2
Temporals	1+2	1+2	1+2	1+2
Ventrals	175	172	172	170-200
Subcaudals	30	31	38	27-44
Dorsals	15-15-15	15-15-15	15-15-15	15-15-15
SVL	21.9 cm	15.8 cm	36.0 cm	—
CL	2.6 cm	2.1 cm	6.0 cm	1.9–7.5 cm
TL	24.5 cm	17.9 cm	42.0 cm	16.3–77.2 cm

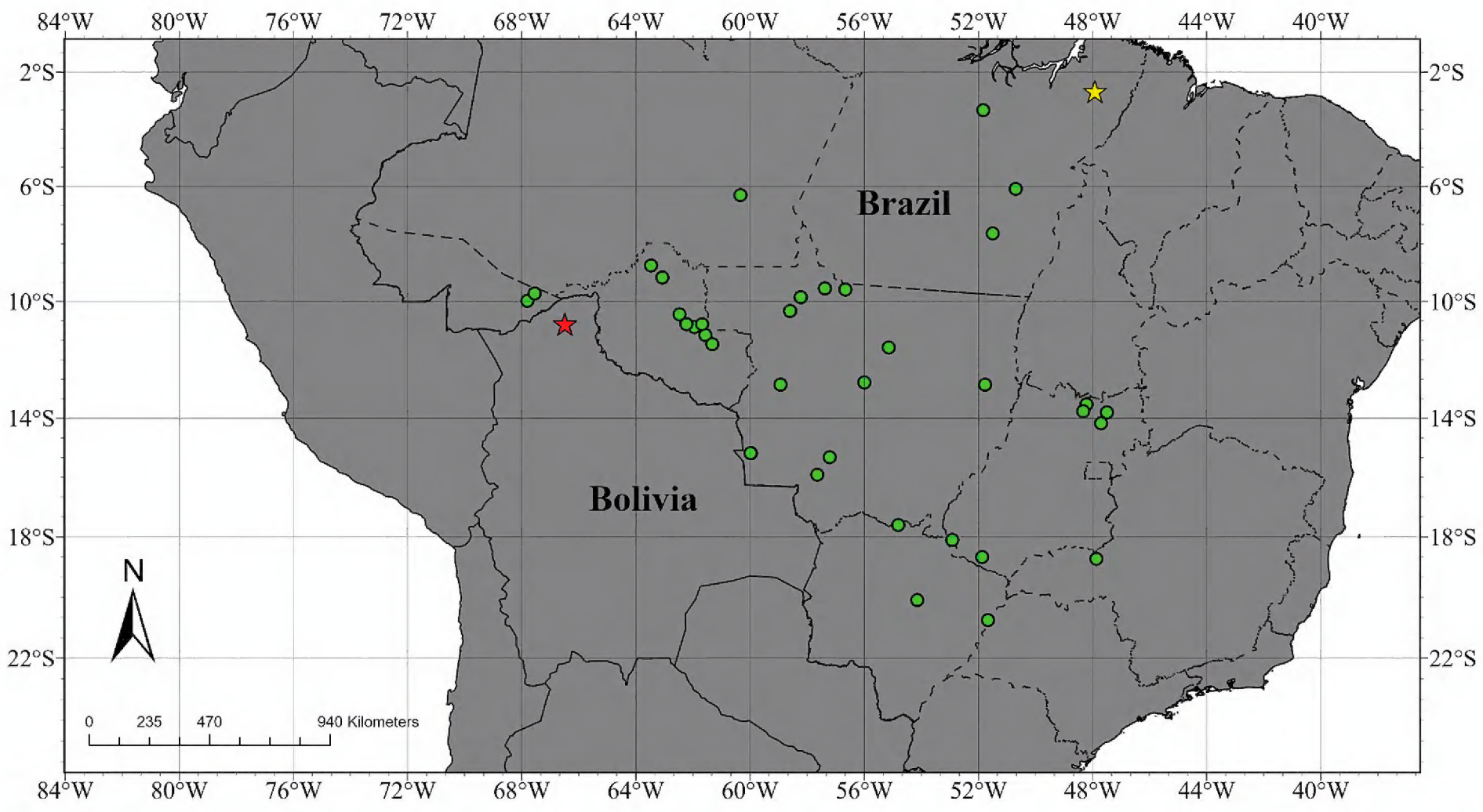

Figure 2. Map showing the distribution of *Atractus albuquerquei*. ● = records from previously published literature (see Nascimento et al. 2017; Nogueira et al. 2019); ★ = new records from Bolivia includes both specimens (CIRA-833 and CIRA-834); ☆ = type locality (Paragominas, Pará, Brazil).

infralabials. Loreal scale present, approximately twice as long as wide. Preocular absent, two postoculars, one anterior temporal, two posterior temporals.

The dorsal coloration on both specimens was uniformly dark brown to black; however, there was a distinct difference in ventral scale coloration. Specimen CIRA-834 was uniformly cream color; however, specimen CIRA-833 displayed bright-yellow ventral scales. The coloration, pattern, and meristic data of the specimens are congruent with the descriptions by Cunha and Nascimento (1983) and Zaher et al. (2005) for *A. albuquerquei*.

Discussion

These new records of *Atractus albuquerquei* represent the southwestern boundary of this species' known distribution (Fig. 2). This extends the range of *A. albuquerquei* 170 km southeast from the location of the nearest reported specimen in the state of Acre, Brazil, and is the first report of *A. albuquerquei* from Bolivia. It is likely that the species is distributed throughout northern Bolivia in the departments of Pando, Beni, the northern region of La Paz, and possibly neighboring Peru. Clearly, additional surveys are needed to delimit the geographic range and to help develop a greater understanding of the natural history of this species.

Acknowledgements

We thank the Centro de Investigación de Recursos Acuáticos (CIRA), Universidad Autónoma del Beni "Jośe Ballivián", and Universidad Amazónica de Pando for logistical support. We thank the Dirección General de Biodiversidad y Áreas Protegidas, Servicio Nacional de Áreas Protegidas, and numerous Bolivian communities for access to study areas and field support.

Authors' Contributions

RLP, CBE, DL, EAS, and GCV conducted fieldwork, collected specimens, participated in specimen processing, and data collection. RLP, AVC, and CBE led writing. RLP and CBE collected photo vouchers. RLP and AVC composed and edited the photo submissions. CBE designed the map. All authors reviewed the final paper before submission.

References

Camper JD, Zart DJ (2014) *Atractus snethlageae* (ground snake). diet. Herpetological Review 45 (4): 705.

Cisneros-Heredia DF (2005) Report of molluscivory in *Atractus carrioni* Parker, 1930. Herpetozoa 18: 185–186.

Cunha OR, Nascimento FP (1983) Ofídios da Amazônia XX: as espécies de Atractus Wagler, 1828, na Amazônia oriental e Maranhão (Ophidia, Colubridae). Boletim do Museu Paraense Emílio Goeldi 123: 1–38.

Dowling HG (1951) A proposed standard system of counting ventrals in snakes. British Journal of Herpetology 1: 97–99.

Eversole CB, Powell RL, Lizarro D, Moreno F, Calderón-Vaca G, Aparicio J, Crocker AV (2019) Introduction of a novel natural history collection: a model for global scientific collaboration and enhancement of biodiversity infrastructure with a focus on developing countries. Biodiversity and Conservation 28 (7): 1921–1931. https://doi.org/10.1007/s10531-019-01765-0

Martins M, Oliveira ME (1998) Natural history of snakes in forests of the Manaus Region, Central Amazonia, Brazil. Herpetological Natural History 6: 78–150.

McDiarmid RW, Foster MS, Guyer C, Gibbons JW, Chernoff N (2012) Reptile biodiversity: standard methods for inventory and monitoring. University of California Press, Los Angeles, 424 pp.

Myers CW (2003) Rare snakes five new species from Eastern Panama: Reviews of northern *Atractus* and southern *Geophis* (Colubridae: Dipsadinae). American Museum Novitates 3391: 1–47.

Nascimento BTM, Maffei F, Moya GM, Donatelli RJ (2017) *Atractus albuquerquei* Cunha & Nascimento, 1983 (Serpentes, Dipsadidae): first record for the state of Minas Gerais, southeastern Brazil. Check List 13 (2): 2078. https://doi.org/10.15560/13.2.2078

Nogueira CC, Argôlo AJS, Arzamendia V, Azevedo JA, Barbo FE, Bérnils RS, Bolochio BE, Borges-Martins M, Brasil-Godinho M, Braz H, Buononato MA, Cisneros-Heredia DF, Colli GR, Costa HC, Franco FL, Giraudo A, Gonzalez RC, Guedes T, Hoogmoed MS, Marques OAV, Montingelli GG, Passos P, Prudente ALC, Rivas GA, Sanchez PM, Serrano FC, Silva Jr NJ, Strüssmann C, Vieira-Alencar JPS, Zaher H, Sawaya RJ, Martins M (2019) "Atlas of Brazilian Snakes: Verified Point-Locality Maps to Mitigate the Wallacean Shortfall in a Megadiverse Snake Fauna,". South American Journal of Herpetology 14 (sp1): 1–274. https://doi.org/10.2994/sajh-d-19-00120.1

Passos P, Fernandes R, Bérnils RS, Moura Leite JC. (2010) Taxonomic revision of the Brazilian Atlantic Forest *Atractus* (Reptilia: Serpentes: Dipsadidae). Zootaxa 2364: 1–63. http://doi.org/10.11646/zootaxa.2364.1.1

Passos P, Prudente ALC, Lynch JD (2016) Redescription of *Atractus punctiventris* and description of two new *Atractus* (Serpentes: Dipsadidae) from Brazilian Amazonia. Herpetological Monographs 30: 1–20. https://doi.org/10.1655/herpmonographs-d-14-00009

Passos P, Sudré V, Doria G, Campbell PD (2018) The taxonomic status of the "forgotten" Bolivian snakes, *Atractus balzani* Boulenger 1898 and *Atractus maculatus* (sensu Boulenger 1896) (Serpentes: Dipsadidae). Zootaxa 4438 (1): 176–182. http://doi.org/10.11646/zootaxa.4438.1.10

Perrella D, Mercival F (2016) *Atractus trihedrurus* (South Brazilian Spindle Snake). Diet. Herpetological Review 47 (4): 676.

Peters JA (1964) Dictionary of herpetology. Hafner, New York, 392 pp.

Uetz P, Freed P, Hošek J (Eds) (2019) The reptile database. http://www.reptile-database.org. Accessed on: 2019-08-11.

Zaher H, Souza I, Gower DJ, Hingst Zaher E, Silva Jr NJ (2005) Redescription of *Atractus albuquerquei* (Serpentes: Colubridae: Dipsadinae), with comments on geographical distribution and intraspecific variation. Papéis Avulsos de Zoologia 45 (2): 19–32. https://doi.org/10.1590/S0031-10492005000200001